

Approved FSM Amendments – November 9, 2009

Double Underlined = Additions

Double Underlined = Addition since Planning Commission Review (see page 6)

~~Double Strikethrough = Deletions~~

CHAPTER 4.000 TRANSPORTATION

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4.200 TRANSPORTATION PLANNING

A. General Requirements

3. Traffic Calming

The County promotes the use of traffic calming measures to improve safety for non-motorized street users and pedestrians in accordance with VDOT's adopted policies and standards. During street layout and design, the issue of traffic calming should be considered. Early consideration can minimize future speeding problems and improve the livability of the neighborhood. If the street layout cannot be designed to encourage target speeds, traffic calming treatments may be appropriate. The type of treatment chosen for incorporation in the design depends on the function and traffic volume of the roadway segment. When traffic-calming measures are proposed, such measures may be shown on the preliminary subdivision plat, and shall be shown on construction plans and profiles and site plan submissions. If desired, a comprehensive traffic calming design, designating proposed measures such as but not limited to signage, striping, narrower roadways, chokers, raised crosswalks and roundabouts, can be submitted for review and approval for the entire development with the first preliminary subdivision application. In such cases, subsequent applications shall make reference to the approved comprehensive traffic calming design and the traffic calming measures should be appropriately provided on the current application.

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4.310 GENERAL DESIGN REQUIREMENTS

- H. On curb and gutter sections, except for Category B and C private roadways, the roadway right-of-way, or easement where applicable, shall extend a minimum of six feet beyond the face of curb so that drainage structures can be accommodated.
- I. Signage and fire lane marking shall be in accordance with ~~Chapter 7 of this manual~~ Section 4.800 of this Chapter.

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4.330 PRIVATE ROADWAY STANDARDS

Only delete the underlining ("**" is to be kept). (This note is to be deleted from adopted version)

B. Category A Roadways

Table I

| Type | Average Daily Traffic (in VPD) | Lane Width * | One-Way Width * | Shoulder Width | Curve Radius (Min.) | Stopping Sight Distance | Maximum Grade | Vertical Curve Design | Minimum Intersection Sight Distance |
|------|--------------------------------|--------------|-----------------|----------------|---------------------|-------------------------|---------------|-----------------------|-------------------------------------|
| A1 | 1-250 | 9 ft | 16 ft | 2 ft ** | 110 ft | 150 ft | 12% | 20 mph | 200 ft |
| A2 | 251-999 | 10 ft | N/A | 4 ft | 165 ft | 150 ft | 12% | 25 mph | 250 ft |
| A3 | 1000-3000 | 11 ft | N/A | 6 ft | 165 ft | 150 ft | 10% | 25 mph | 250 ft |
| A4 | 3001-5500 | 12 ft | N/A | 6 ft | 338 ft | 200 ft | 10% | 30 mph | 300 ft |
| A5 | 5500+ | 12 ft | N/A | 6 ft | 478 ft | 275 ft | 8% | 35 mph | 350 ft |

* Does not include gutter pan.

** Shoulders ~~must~~ shall be treated/compacted to support emergency vehicles.

Notes:

1. Minimum travelway width from face of curb to face of curb shall be 20 feet.

~~1-2.~~ Turn lanes shall be required at entrance locations with Average Daily Traffic in excess of 5500 VPD, if warranted based on the peak hour traffic volumes, per Appendix C of the VDOT Road Design Manual. Such turn lanes may be required on both the public and private legs of an intersection, if applicable.

~~2-3.~~ Roadways in excess of 3,000 VPD shall be superelevated in accordance with the VDOT Road Design Manual.

~~3-4.~~ Required thickness of subbase, base course, and top or surface course for private roads shall be determined based on projected Average Daily Traffic volumes for the roadway or segment, using the VDOT Subdivision Street Requirements, if Average Daily Traffic exceeds 250 VPD.

~~4-5.~~ The minimum pavement section for private roadways with a projected Average Daily Traffic of less than or equal to 250 VPD shall consist of 6 inch aggregate base course and a 2 inch bituminous surface course on a properly compacted

subgrade.

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C. Category B Roadways

Table II

| Type | Average Daily Traffic (in VPD) | Travelway Width (2-way) | Travelway Width (1-way) | Centerline Curve Radius | Stopping Sight Distance | Maximum Grade |
|------|--------------------------------|-------------------------|-------------------------|-------------------------|-------------------------|---------------|
| B1 | 1-250 | 25 ft. | 18 20 ft. | 36 ft. | 90 ft. | 8% |
| B2 | 251-750 | 25 ft. | 18 20 ft. | 60 ft. | 120 ft. | 8% |
| B3* | 751-1000 | 25 ft. | 18 20 ft. | 60 ft. | 120 ft. | 8% |

* Angle parking is not allowed on Type B3 roadways. Parallel parking is allowed on Category B private roadways with additional pavement in accordance with the standards established in this chapter.

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D. Category C Roadways

Table III

| Subdivision Size | Easement Width *1 | Travel-Way Width | Shoulder Width *7 | Materials | | Maximum Grade *4 *5 | Centerline Curve Radius |
|-------------------------------|-------------------|--------------------------------------|----------------------------|---------------------------|--------|---------------------|-------------------------|
| | | | | Paved | Gravel | | |
| C1 (up to 2 lots) | 24' | 12' | N/A 4' grass | 2" over 4" base (opt.) *3 | 6" | 10% | 30' |
| C2 (3-7 lots) | 30' | 14' | 23' grass | 2" over 4" base *3 | 6" | 10% | 75' |
| C3 (8 or more lots) | 40' | 18' *2 | 2' gravel | 2" over 6" base | 6" | 10% | 110' |
| C4 (alley) *8 | 20' | 14' | 2' grass | 2" over 6" base | N/A | 12% | N/A |
| C4 (Curb and Gutter alley) *8 | 20' | 14' (One-Way) *6 18' (Two-Way) *6 | N/A | 2" over 6" base | N/A | 12% | N/A |

Footnotes:

- *1 Additional easement width may be required at specific locations to accommodate slope maintenance, drainage, sight distance, etc.
- *2 Travelway widths are permitted to step-down to a Type C1 facility, where the number of lots served is 2 or less.
- *3 All pipestem drives shall be paved and shall be limited to serving 7 lots. Refer to Figure 7 for Pipestem Driveway Entrance Standards.
- *4 12 percent for pipestems or Category C roads that require paving.
- *5 Steeper grades may be considered where there are topographic or environmental constraints which prohibit the maintenance of the 10% grade criteria.
- *6 ~~Refer to Figure 7 for Pipestem Driveway Entrance Standards.~~ Measured from face of curb to face of curb.
- *7 Shoulders ~~must~~ shall be compacted/treated to support emergency vehicles.
- *8 Refer to Figure 15 for alley entrance to public street.

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4.400 PARKING GEOMETRIC STANDARDS

B. Geometrics

- 2. Travelway ~~A~~ aisle widths for standard car parking ~~spaces~~ lots shall be provided in accordance with the following: 90 degrees - 22 feet; 60 degrees - 20 feet; and 45 degrees - 18 feet. A minimum travelway aisle width of 25 feet shall be maintained adjacent to buildings. The minimum travelway aisle width is 18 feet. Travelway aisle width shall be measured from the face of curb ~~if~~ where there is no parking and from the back of the parking space where there is parking.

C. Loading Spaces

- 2. Semi-Trailer Standard Loading Space
 - a. Semi-trailer loading spaces shall be a minimum of 15 feet in width and 55 feet in length and provide a minimum horizontal clearance of 15 feet.

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4.810 FIRE ~~LANE SIGNS~~ APPARATUS ACCESS ROAD REQUIREMENTS

Pursuant to the Virginia Statewide Fire Prevention Code (the "SFPC"), as adopted in Chapter 1602 of the Codified Ordinances of Loudoun County, Loudoun County is authorized to adopt a written policy to establish where Fire Apparatus Access Roads are required, and the Loudoun County Fire Marshal, or his/her designee, is authorized to designate public and private Fire Apparatus Access Roads, as deemed necessary for the efficient and effective operation of fire and/or rescue apparatus.

~~A. Reference is made to the Loudoun County Codified Ordinances for information relating to the fire lane sign types, size and installation specifications.~~

A. Definitions

For purposes of this Section a "Fire Apparatus Access Road" shall mean a travelway that provides primary fire apparatus access from a fire station to a facility, building, or portion thereof, where "travelway" shall be construed generally and shall mean all private roadways as defined by Chapter 4 of this Manual and parking lot major site accessways, and shall include shoulders if treated/compacted to support emergency vehicles.

~~B. Fire Lane signs shall be installed at the beginning of a designated Fire Lane and at the end of a designated fire lane with directional arrows pointing in. In addition, curbing shall be painted yellow with "Fire Lane" stenciled in black on the curbing every 50 feet of the fire lane in 4 inch letters within attached and multi-family developments.~~

B. Provisions of this Section 4.810 may be waived in consultation with the Fire Marshal, only if in compliance with the SFPC.

~~C. Fire lane signs shall be installed for the following categories of private roadways and parking lot travelways, including compacted shoulders if applicable, as defined in Chapter 4 of this manual, unless parking is prohibited along private streets/private access easements through owner's association documents or deed restrictions; or unless the roadway is part of an application in a Zoning District permitting a density of no greater than 1 lot for 3 acres in accordance with the following:~~

C. Prior to the issuance of a certificate of occupancy for any residential, mixed-use or non-residential facility, building, or portion of a building hereafter constructed, the Fire Apparatus Access Road serving said facility, building, or portion of a building shall meet the following Fire Lane Identification requirements:

1. Where Fire Lane Identification is Required:

~~1.a.~~ Travelways with a total width ~~up to 24~~ less than twenty-six (26) feet shall

~~require fire lane signs~~ be identified as a Fire Lane on both sides of the road travelway, in accordance with this Section.

~~2.b.~~ Travelways with a total width ~~of over 24~~ of twenty-six (26) feet ~~and up~~ or greater, and less than or equal to ~~29~~ thirty-two (32) feet shall ~~require~~ ~~fire lane signs~~ be identified as a Fire Lane on one side of the road travelway, in accordance with this Section.

~~3.~~ ~~Travelways with a total width exceeding 29 feet shall not require fire lane signs.~~

~~4.c.~~ Commercial/~~Non-residential~~ buildings shall require ~~fire lane signs~~ Fire Lane Identification, as specified by the Fire Marshal, along the frontage of the building and at other building access points, as designated by the Fire Marshal.

~~5.d.~~ Public pools shall provide ~~fire lane signs~~ Fire Lane Identification, as specified by the Fire Marshal, at ~~the any~~ entrance ~~to the secured entrance/access~~ for emergency vehicles.

2. Fire Lane Identification Specifications for Residential Developments:

a. Fire Lane signs shall be installed at the beginning of a designated Fire Lane and at the end of a designated fire lane with directional arrows pointing in. In addition, curbing shall be painted yellow with "Fire Lane" stenciled in black on the curbing every 50 feet of the fire lane in 4 inch letters.

b. In lieu of curb markings in paragraph (a) above, Fire Lanes seventy-five (75) feet or greater in length, may have intermediate "Fire Lane" signs installed, with double directional arrows that point away from the center of the sign and towards the opposing ends of the Fire Lane, such that the spacing of signs is no greater than eighty (80) feet between signs in residential areas.

c. Fire Lane signs shall comply with the design requirements and installation specifications for Fire Lane signage set forth in Chapter 486 of the Codified Ordinances of Loudoun County, ~~except as modified by Figure 16.~~

3. Exceptions:

a. Fire Lane Identification shall not be required if a travelway has a total width greater than thirty-two (32) feet.

b. Fire Lane Identification shall not be required within the AR-1, AR-2, and A-3 Zoning Districts if parking along private streets and/or private access

easements has been prohibited through owner's association documents or deed restrictions and the applicable Home Owners Association or Property Owners Association maintains "No Parking" signage at appropriate intervals.

c. Fire Lane Identification shall not be required if the travelway is part of a development where all proposed lots are three (3) acres in size or greater.

d. Fire Lane Identification shall not be required within attached and multi-family developments if parking along private streets and/or private access easements has been prohibited through owner's association documents or deed restrictions and the applicable Home Owners Association or Property Owners Association maintains "No Parking" signage at appropriate intervals.

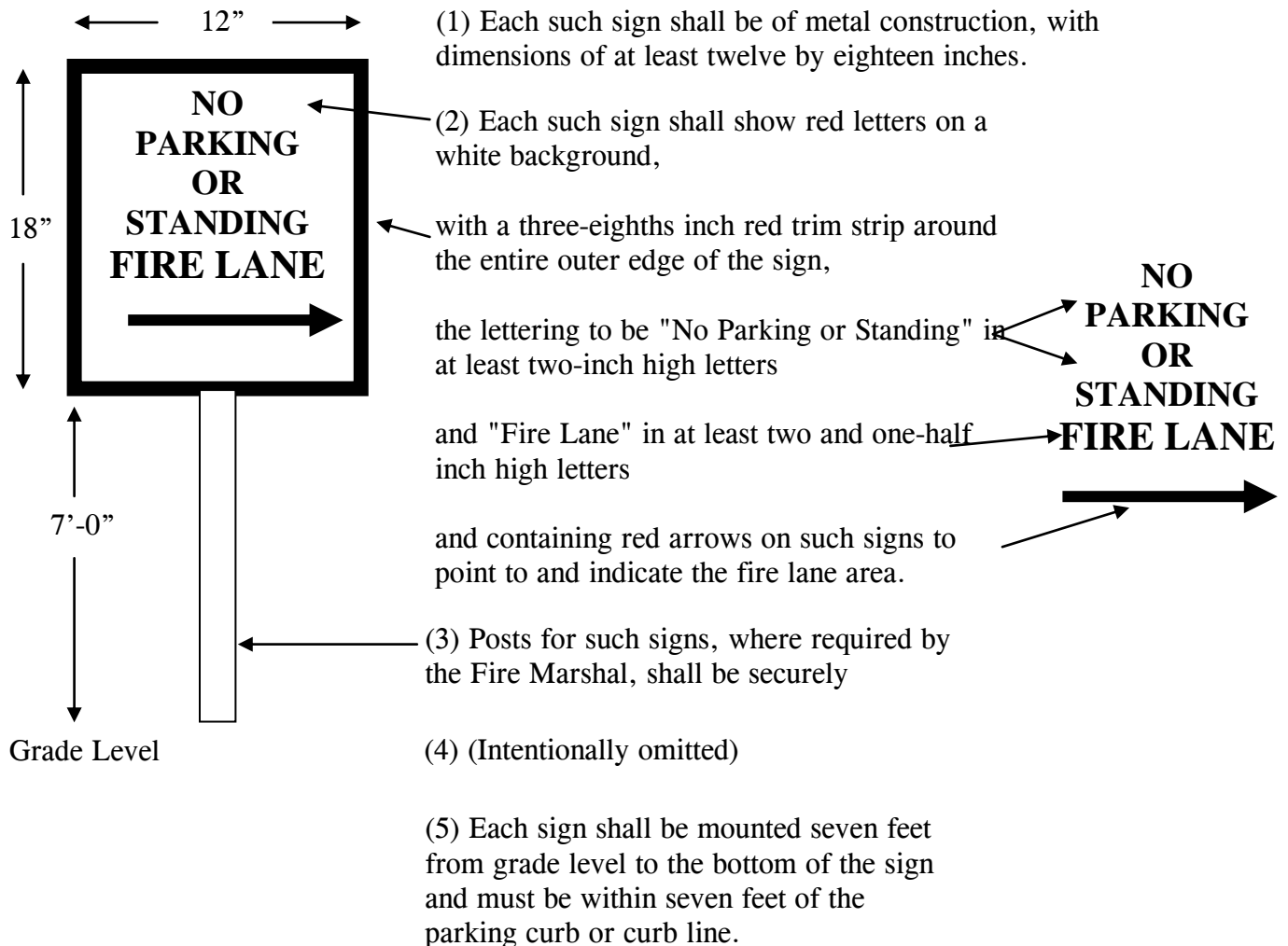
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Fire Lane Sign Type and Specifications



***Fire Lane signs without directional arrows are not acceptable**

SPECIFICATIONS (Section 486.02(b) of the Codified Ordinances):



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CHAPTER 5.000 WATER RESOURCE MANAGEMENT

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5.200 HYDROLOGICAL DESIGN

For rainfall intensity and rainfall depth values, use the following tables:

Table I

| COUNTY OF LOUDOUN RAINFALL INTENSITY VALUES TIME OF CONCENTRATION | | | | | | |
|--|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| Storm Event | 5 min. | 10 min. | 15 min. | 30 min. | 60 min. | 120 min |
| 100 year | <u>9.42</u> 8.64 | <u>7.44</u> 6.95 | <u>6.30</u> 5.94 | <u>4.58</u> 4.38 | 3.22 | <u>2.23</u> 2.18 |
| 50 year | <u>8.61</u> 7.92 | <u>6.79</u> 6.36 | <u>5.72</u> 5.41 | <u>4.09</u> 3.92 | <u>2.82</u> 2.72 | <u>1.89</u> 1.83 |
| 25 year | <u>7.74</u> 7.33 | <u>6.15</u> 5.94 | <u>5.19</u> 5.06 | <u>3.67</u> 3.64 | <u>2.47</u> 2.49 | <u>1.61</u> 1.64 |
| 10 year | <u>6.75</u> 6.41 | <u>5.36</u> 5.15 | <u>4.50</u> 4.39 | <u>3.13</u> 3.10 | 2.05 | <u>1.29</u> 1.30 |
| 5 year | <u>6.05</u> 5.82 | <u>4.78</u> 4.67 | <u>3.99</u> 3.93 | <u>2.75</u> 2.74 | 1.78 | <u>1.11</u> 1.10 |
| 2 year | <u>5.01</u> 4.86 | <u>4.00</u> 3.88 | <u>3.35</u> 3.25 | <u>2.28</u> 2.22 | <u>1.42</u> 1.40 | 0.83 |
| 1 year | 4.88 | 3.91 | 3.31 | 2.34 | 1.47 | 0.86 |

Table II

| RAINFALL DEPTH | | |
|----------------|------------------|-------------------------------|
| 1 year | 24 hour rainfall | <u>2.53"</u> 2.55" |
| 2 year | 24 hour rainfall | <u>3.05"</u> 3.08" |
| 5 year | 24 hour rainfall | <u>3.89"</u> 3.94" |
| 10 year | 24 hour rainfall | <u>4.61"</u> 4.68" |
| 25 year | 24 hour rainfall | <u>5.70"</u> 5.82" |
| 50 year | 24 hour rainfall | <u>6.64"</u> 6.81" |
| 100 year | 24 hour rainfall | <u>7.70"</u> 7.93" |

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CHAPTER 6.000

SOILS, GEOTECHNICAL, AND HYDROGEOLOGICAL REVIEWS

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6.213 REPORTING REQUIREMENTS

B. Maps

A map or set of maps (scales from 1:2400 [1 inch = 200 feet] to 1:12000 [1 inch = 1,000] feet and with north arrows and explanations as needed) covering the development proposal. The map(s) shall contain all existing planimetric features, topography with ~~5-foot~~ contour intervals of 5 feet or less in North American Vertical Datum of 1988 (NAVD 88), North American Datum of 1983, NAD 1927 Virginia North State plane (NAD 83 HARN) coordinate grid system, all proposed roads, proposed lot lines, proposed lot sites, proposed house sites, proposed septic fields, surface water features, and springs. Groundwater contours with data control points and direction of groundwater flow shall be illustrated. (Projects that were started prior to (-fill in adoption date--)) may use the previously required NAD 27 datum.)

D. Geologic Logs

For each well drilled for the investigation, a geologic log shall be completed and sealed by a Virginia certified professional geologist. A Virginia Water Well Completion Report (form GW-2) shall be completed for each well and signed by the driller who shall be licensed to do business in Loudoun County. The geologic log shall include contain the NAD 1927 Virginia North State Plane Coordinate 83 HARN grid 1927 Virginia North State Plane coordinates and land surface elevation in NAVD 88 of the well. (Projects that were started prior to (-fill in adoption date--)) may use the previously required NAD 27 datum.)

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CHAPTER 8

ADMINISTRATIVE PROCEDURES

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8.101 GENERAL

A.

8. Coordinate Grid Lines: Approximate coordinate grid lines and values reflecting the ~~NAD 27~~ North American Datum of 1983 (~~NAD 83~~) Virginia North State plane (NAD 83 HARN) coordinate grid system with at least four ticks or intersection points shall be shown on each plan sheet, for informational purposes, in intervals of no less than 250 foot increments and no more than 1,000 foot increments. For record plats, grid system coordinates of at least two adjacent corners shall be included, if any point in the subdivision is within 1/2 mile of an NGS or equivalent triangulation or traverse station established within the standards for a second order geodetic monument. (Projects that were started prior to (--fill in adoption date--) may use the previously required NAD 27 datum.)
17. Topography: Topographic information, indicating when and by what means it was made, having contour intervals of 2 feet or less, showing all the area covered by the site, including a 50 foot overlap, and related to the ~~National Geodetic vertical datum of 1929~~ North American Vertical Datum of 1988 (NAVD 88). Areas of forest or other vegetated cover shall also be shown. Champion trees as identified in adopted Federal and State documents must also be identified. (Projects that were started prior to (--fill in adoption date--) may use the previously required NGVD 29 datum.)

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8.102 PRELIMINARY PLAT OF SUBDIVISION

A.

29. Current topographic information, indicating when and by what means it was made, having contour intervals of 5 feet or less, showing all the area covered by the subdivision not including residue parcel(s) and related to the ~~National Geodetic vertical datum of 1929~~ North American Vertical Datum of 1988 (NAVD 88). Areas of forest or other vegetated cover shall also be shown. In cases where a Tree Cover Inventory has been performed for the property, identified cover type areas and specimen trees must be depicted. Champion trees as identified in adopted Federal and State documents must also be identified. (Projects that were started prior to (--fill in adoption date--) may use the previously required NGVD 29 datum.)

8.106 CONSTRUCTION PLANS AND PROFILES

A.

~~31. Zoning, variance, special exception, subdivision, or subdivision exception information.~~

312. Numbered archaeological sites and structures, cemeteries, and historic landmarks on the site to be preserved, as identified by archaeological surveys performed for the property.

323. Very Steep and Moderately Steep Slopes, as defined in the Zoning Ordinance of Loudoun County, shown on the plans that show limits of clearing, grading, and erosion and sediment control.

334. Pollution sources (including without limitation dump sites, drainfields, buried fuel tanks, hazardous material storage facilities, solid and liquid disposal sites, etc.), wells, and springs that are known or as identified in LOGIS.

345. Open space and conservation easements and instrument numbers.

356. Overlay Districts, as established in the Zoning Ordinance, shown on the plans that show limits of clearing, grading, and erosion and sediment control.

367. The boundaries of the Scenic Creek Valley Buffer and other required environmental buffers.

378. Approval block.

389. For single family attached and semi-detached developments, the following shall be shown:

- a. Location, type, size, and height of fencing, screening, and retaining walls.
- b. Off-road parking and parking bays, loading spaces, walkways, and bike paths, indicating type of surfacing, size, angle of stalls, width of aisles, and number of parking and loading spaces provided.
- c. The number of floors, floor area, height, exterior dimensions, location, and proposed use of each building.

3940. Design speed for all proposed road